Contrast Control

KODAK EKTACOLOR 74 RC Paper is matched to the normal contrast characteristics of professional color negatives. Occasionally, however, a subject is encountered that would reproduce better at a contrast level different from that afforded by the film-and-paper method. In such cases, a supplementary mask can be used to modify the printing characteristics of the negative. Masking is not often necessary, but in the comparatively rare instances that it is needed, the improvement is usually significant.

Contrast Reduction

Sometimes, because of an excessive subject brightness range, a negative may contain too great a range of densities to print satisfactorily on EKTACOLOR 74 RC Paper. One of the causes of high-contrast negatives is an excessive lighting ratio in the original scene. For best results, the lighting ratio should not exceed 3:1 for average subjects. When the most appropriate lighting still gives a high-density range, some means of reducing the range is necessary. Consider, for example, a bride's white gown next to shadow areas of the groom's dark suit, or a large group photograph showing no separation of detail in dark areas between subjects. In such cases, local control in printing may not solve the problem completely or even passably. However, a positive mask can be superimposed over the negative to compress its density range to a more suitable level for printing.

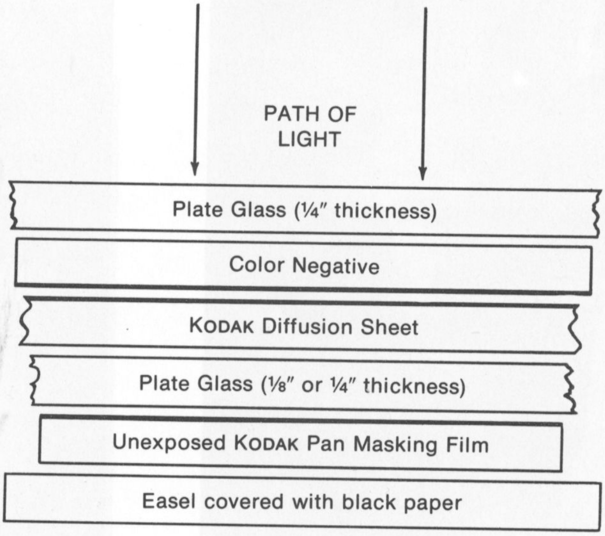
Making the Positive Mask: The positive mask is made by contact-printing the color negative on a sheet of KODAK Pan Masking Film 4570. It is convenient to use a tungsten enlarger as the light source and to make the exposure on the easel. The mask image is diffused with a diffusion sheet and a piece of clear glass. A ⅛-inch thickness of glass is used for negatives 5 x 7 inches and smaller; a ¼-inch thickness of glass is used for negatives larger than 5 x 7 inches. For exposing the mask, the films, glass, and diffusion sheet are arranged as shown in the diagram at the right.

Exposure: With the lens set at the largest opening, adjust the illumination to give 3 footcandles at the easel (measured without filters) by raising or lowering the enlarger head. Add four CC50B filters to the light beam to counteract the effect of the colored couplers in the negative and stop down 3 stops. The exposure time varies with the color negative density. Try an initial exposure time of 8 to 10 seconds. Adjust exposure so that there is very little image in the highlight areas. An overexposed mask will result in a print with insufficient contrast and smoky shadow areas.

Development: Develop the exposed mask for 3 minutes at 20°C (68°F) with continuous agitation in a tray of fresh developer. Either KODAK Developer DK-50 (1:4) or KODAK HC-110 Developer, working Dilution F, or equivalent, can be used. Do not extend the development time to compensate for inadequate exposure. Rinse, fix, wash, and dry the mask as described in the film instruction sheet.

Printing the Masked Negative: Tape the mask in register on the base side of the color negative and place the combination in the negative carrier with the emulsion side of the color negative *down* as usual. The exposure time for printing this combination is about 1½ times the exposure required for the unmasked negative. No change in filter pack is required.

(Exposing the positive mask)

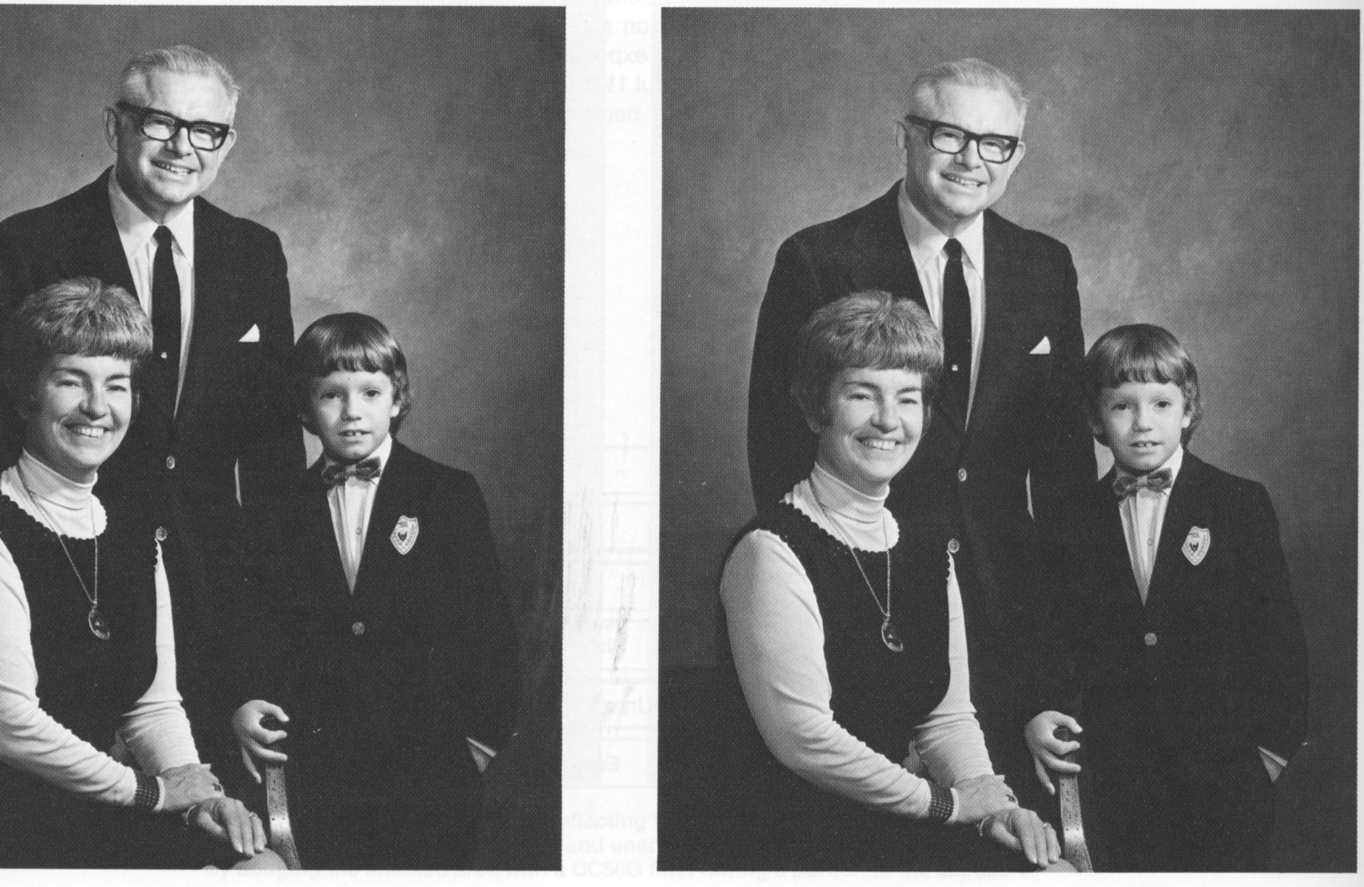

PATH OF LIGHT
Plate Glass (¼″ thickness)
Color Negative
KODAK Diffusion Sheet
Plate Glass (⅛″ or ¼″ thickness)
Unexposed KODAK Pan Masking Film
Easel covered with black paper

Contrast Increase

On rare occasions, a negative may be encountered that is too low in contrast to make use of the full density range of the print material. The cause may be slight underexposure of the negative, camera flare, an unusually low lighting ratio in the illumination of the original scene, an unusually low reflectance ratio on the part of the subject material, or a combination of these factors. In such cases, a negative silver mask can be added to the color negative to increase its effective density range and improve print quality. Before the negative mask can be made, an interpositive mask must be made first.

Making the Interpositive Mask: With the lens set at the largest opening, adjust the illumination level to give 3 footcandles at the easel (measured without filters). Add four CC50B filters and stop down 3 stops. Contact-print the color negative on KODAK Separation Negative Film 4133, Type 2, or equivalent, emulsion to emulsion. No diffusion sheet or glass should be between the color negative and the separation negative film. Try an initial exposure time of 8 to 10 seconds. Adjust the exposure to obtain a clean, crisp positive image. A good interpositive will look like a black-and-white transparency with slightly high density. Develop the interpositive mask in undiluted KODAK Developer DK-50 or KODAK HC-110 Developer, working Dilution C, or equivalent, for 4 minutes at 20°C (68°F). Do not extend the development time to compensate for inadequate exposure.

Making the Negative Silver Mask: Using the same illumination setup, close down the lens 4 stops and contact-print the interpositive mask on KODAK Separation Negative Film 4133, Type 2, or equivalent, with the base side of the interpositive mask facing the emulsion of the separation negative film. Use no diffusion sheet. Try an exposure time of 1½ seconds and develop the mask in undiluted KODAK Developer DK-50 or KODAK HC-110 Developer, working Dilution C, or equivalent, for 4 minutes at

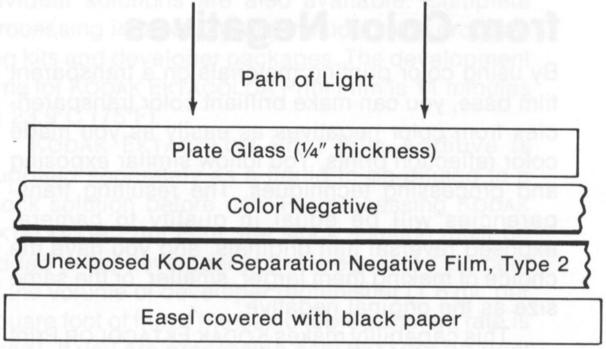


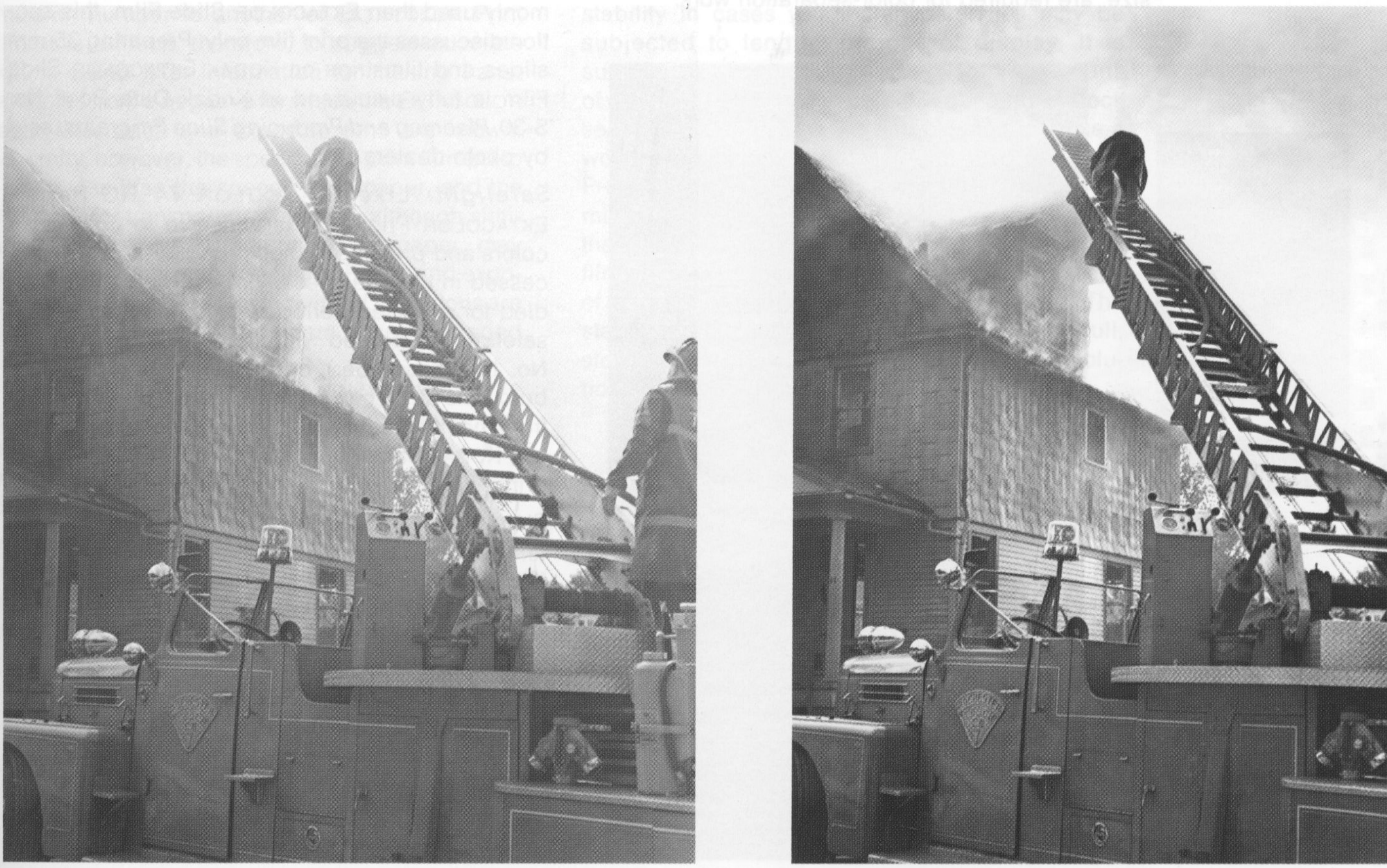
High negative contrast, because of insufficient fill light, is decreased by printing with a positive silver mask in register with the color negative.

20°C (68°F). A satisfactory negative mask will appear underexposed with no density in the deep shadows. The highlight areas will have the desired density in most areas. However, some areas, such as windows and glass-covered or highly reflective surfaces, do not need the additional density. In such cases, the density in the mask can be removed by local etching or bleaching procedures.

Printing the Masked Negative: For printing on the print material, tape the silver negative mask in register on the base side of the color negative and place the combination in the negative carrier with the emulsion side of the negative *down* as usual.

Exposing the Interpositive


Path of Light
Plate Glass (¼″ thickness)
Color Negative
Unexposed Kodak Separation Negative Film, Type 2
Easel covered with black paper



Low negative contrast, because of smoke and flare, is increased by printing with a negative silver mask in register with the color negative.

Contrast Control

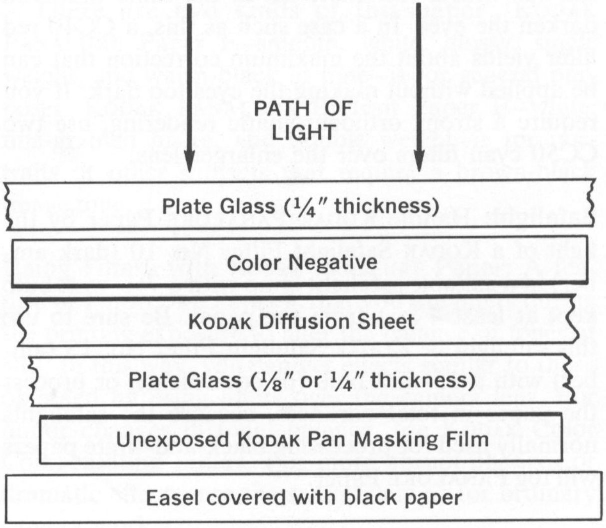
Kodak Ektacolor 37 RC Paper is matched to the normal contrast characteristics of professional color negatives. Occasionally, however, a subject is encountered that would reproduce better at a contrast level different from that afforded by the film-and-paper method. In such cases, a supplementary mask can be used to modify the printing characteristics of the negative. Masking is not often necessary, but in the comparatively rare instances that it is needed, the improvement is usually significant.

Contrast Reduction

Sometimes, because of an excessive subject brightness range, a negative may contain too great a range of densities to print satisfactorily on Ektacolor 37 RC Paper. One of the causes of high contrast negatives is an excessive lighting ratio in the original scene. For best results, the lighting ratio should not exceed 3:1 for average subjects. When the most appropriate lighting still gives a high density range, some means of reducing the range is necessary. Consider, for example, a bride's white gown next to shadow areas of the groom's dark suit, or a large group photograph showing no separation of detail in dark areas between subjects. In such cases, local control in printing may not solve the problem completely or even passably. However, a positive mask can be superimposed over the negative to compress its density range to a more suitable level for printing.

Making the Positive Mask: The positive mask is made by contact-printing the color negative on a sheet of Kodak Pan Masking Film 4570. It is convenient to use a tungsten enlarger as the light source and to make the exposure on the easel. The mask image is diffused with a Kodak Diffusion Sheet and a piece of clear glass. A ⅛-inch thickness of glass is used for negatives 5 x 7 inches and smaller; a ¼-inch thickness of glass is used for negatives larger than 5 x 7 inches. For exposing the mask, the films, glass, and diffusion sheet are arranged as shown in the diagram above right.

(Exposing the positive mask)


PATH OF LIGHT
Plate Glass (1/4″ thickness)
Color Negative
Kodak Diffusion Sheet
Plate Glass (1/8″ or 1/4″ thickness)
Unexposed Kodak Pan Masking Film
Easel covered with black paper

Exposure: With the lens set at the largest opening, adjust the illumination to give 3 footcandles at the easel (measured without filters) by raising or lowering the enlarger head. Add four CC50B filters to the light beam to counteract the effect of the colored couplers in the negative and stop down 3 stops. The exposure time varies with the color negative density. Try an initial exposure time of 8 to 10 seconds. Adjust exposure so that there is very little image in the highlight areas. An overexposed mask will result in a print with insufficient contrast and smoky shadow areas.

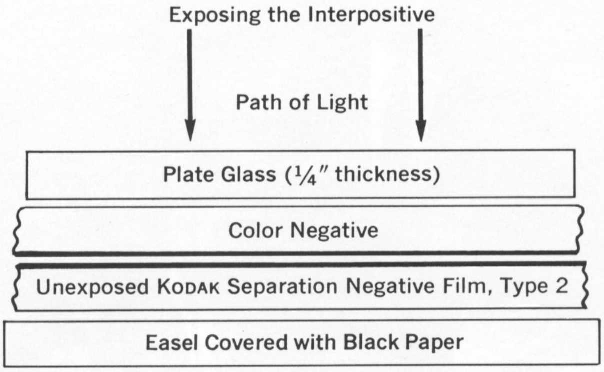
Development: Develop the exposed mask for 3 minutes at 20 C (68 F) with continuous agitation in a tray of fresh developer. Either Kodak Developer DK-50 (1:4) or Kodak HC-110 Developer, Working Dilution F, is recommended. Do not extend the development time to compensate for inadequate exposure. Rinse, fix, wash, and dry the mask as described in the film instruction sheet.

Printing the Masked Negative: Tape the mask in register on the base side of the color negative and place the combination in the negative carrier with the emulsion side of the color negative *down* as usual. The exposure time for printing this combination is about 1½ times the exposure required for the unmasked negative. No change in filter pack is required.

Contrast Increase

On rare occasions, a negative may be encountered that is too low in contrast to make use of the full density range of the print material. The cause may be slight underexposure of the negative, camera flare, an unusually low lighting ratio in the illumination of the original scene, an unusually low reflectance ratio on the part of the subject material, or a combination of these factors. In such cases, a negative silver mask can be added to the color negative to increase its effective density range and improve print quality. Before the negative mask can be made, an interpositive mask must be made first.

Making the Interpositive Mask: With the lens set at the largest opening, adjust the illumination level to give 3 footcandles at the easel (measured without filters). Add four CC50B filters and stop down 3 stops. Contact-print the color negative on Kodak Separation Negative Film 4133, Type 2 (Estar Thick Base), emulsion to emulsion. No diffusion sheet or glass should be between the color negative and the separation negative film. Try an initial exposure time of 8 to 10 seconds. Adjust the exposure to obtain a clean, crisp positive image. A good interpositive will look like a black-and-white transparency with slightly high density. Develop the interpositive mask in undiluted Kodak Developer DK-50 or Kodak HC-110 Developer, Working Dilution C, for 4 minutes at 20 C (68 F). Do not extend the development time to compensate for inadequate exposure.


Exposing the Interpositive
Path of Light
Plate Glass (¼″ thickness)
Color Negative
Unexposed Kodak Separation Negative Film, Type 2
Easel Covered with Black Paper

Making the Negative Silver Mask: Using the same illumination setup, close down the lens 4 stops and contact-print the interpositive mask on Kodak Separation Negative Film 4133, Type 2 (Estar Thick Base), with the base side of the interpositive mask facing the emulsion of the separation negative film. Use no diffusion sheet. Try an exposure time of 1½ seconds and develop the mask in undiluted Kodak Developer DK-50 or Kodak HC-110 Developer, Working Dilution C, for 4 minutes at 20 C (68 F). A satisfactory negative mask will appear underexposed with no density in the deep shadows. The highlight areas will have the desired density in most areas. However, some areas, such as windows and glass-covered or highly reflective surfaces, do not need the additional density. In such cases, the density in the mask can be removed by local etching or bleaching procedures.

Printing the Masked Negative: For printing on the print material, tape the silver negative mask in register on the base side of the color negative and place the combination in the negative carrier with the emulsion side of the color negative *down* as usual.